

(c) separating said hydrocarbon phase into a light ends stream, enriched in phenolic compounds, and a tarry stream enriched in tars, said tarry stream having a reduced amount of salts of neutralization relative to the crude phenolic stream.

16. (Amended). The process of claim 15, wherein at least a portion of said light ends stream is re-circulated to a neutralization zone in which an aralkyl hydroperoxide cleavage mass is neutralized.

27. (Amended) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, removing all or a portion of said phenol from the splitter as a crude phenol bottoms stream, followed by feeding said all or a portion of said crude phenol bottoms stream to a phase separation vessel having a volume of 5000 gallons or less, based on 100 parts by weight per hour of cleavage mass feed to the splitter, and removing at least 80 wt.% of the salts of neutralization from said crude phenol bottoms stream.

29. (Amended) A process for removing salts of neutralization, comprising feeding an aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone from a crude stream of phenol in said splitter, followed by feeding a portion or all of a remainder of said crude phenol stream to a phase separator as a feed comprising hydrocarbons, water, and salts of neutralization, the total amount of hydrocarbon feed from any source to said separator being less than 10 parts by weight per hour of said cleavage mass fed to the splitter, wherein at least 80 wt.% of the salts of neutralization are removed from said remainder of said crude phenol stream.

BU 32. (Amended) A process for removing salts of neutralization from an aralkyl hydroperoxide cleavage mass containing salts of neutralization comprising separating acetone from said cleavage mass, followed by purging the salts of neutralization from a remainder in an aqueous purge stream comprising at least 3 wt.% of the salts of neutralization and at least 90 wt.% water, based on the weight of the purge stream.

Please add the following claims:

39. (New) A process for manufacturing phenolic compounds comprising a means for producing a crude phenol bottoms stream; 77
a means for recovering said phenolic compounds in an organic phase of a phase separation mixture.
40. (New) The method of claim 39 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.
41. (New) The method of claim 39 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.
42. (New) The method of claim 39 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.
43. (New) The method of claim 39 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.
44. (New) The method of claim 39 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.
- 3

45. (New) The method of claim 39 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

46. (New) The method of claim 40 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

47. (New) The method of claim 40 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

48. (New) The method of claim 41 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

49. (New) The method of claim 41 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

50. (New) The method of claim 42 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the

salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

51. (New) The method of claim 42 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

52. (New) The method of claim 43 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

53. (New) The method of claim 43 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

54. (New) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent, allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase, and removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

55. (New) A process for manufacturing phenolic compounds comprising feeding a

wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.60 or less, allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase, and removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

56. (New) The method of claim 55 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

57. (New) The method of claim 55 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

58. (New) The method of claim 55 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

59. (New) The method of claim 54 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

60. (New) The method of claim 55 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

61. (New) The method of claim 56 wherein said means comprises producing a

partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

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~~61.~~ (New) The method of claim 57 wherein said means comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

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~~62.~~ (New) A process for manufacturing phenolic compounds comprising feeding a wholly or partially neutralized aralkyl hydroperoxide cleavage mass containing salts of neutralization to a splitter, separating acetone and phenol from said cleavage mass in the splitter, leaving a crude phenol bottoms stream, feeding to a phase separation vessel a mixture comprising all or a portion of said crude phenol bottoms stream together with an organic diluent having a diluent density sufficiently less than a second density of said phenol bottoms stream to attract phenol from said mixture into an organic phase comprising said diluent, allowing said mixture to phase separate, and recovering said phenolic compounds in said organic phase.

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~~63.~~ (New) The method of claim 62 wherein said diluent density is at least about 1 pcf less than said second density.

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~~64.~~ (New) The method of claim 62 wherein said diluent density is at least about 2 pcf less than said second density.

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~~65.~~ (New) The method of claim 62 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

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~~66.~~ (New) The method of claim 63 wherein at least 80 wt.% of said salts of

neutralization are removed in one or more aqueous streams.

~~67.~~ (New) The method of claim 64 wherein at least 80 wt.% of said salts of

neutralization are removed in one or more aqueous streams.

~~68.~~ (New) The method of claim 54 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

~~69.~~ (New) The method of claim 54 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

~~70.~~ (New) The method of claim 54 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

~~71.~~ (New) The method of claim 54 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

~~72.~~ (New) The method of claim 55 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

~~73.~~ (New) The method of claim 55 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

~~74.~~ (New) The method of claim 55 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

~~75.~~ (New) The method of claim 55 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

~~76.~~ (New) The method of claim 56 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

~~77.~~ (New) The method of claim 56 wherein said organic phase comprises an organic

diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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78. (New) The method of claim 56 wherein said organic phase comprises an organic

diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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79. (New) The method of claim 56 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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80. (New) The method of claim 57 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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81. (New) The method of claim 57 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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82. (New) The method of claim 57 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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83. (New) The method of claim 57 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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84. (New) The method of claim 58 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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85. (New) The method of claim 58 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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86. (New) The method of claim 58 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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87. (New) The method of claim 58 wherein said organic phase comprises an organic
diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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88. (New) The method of claim 59 wherein said organic phase comprises an organic

diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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89. (New) The method of claim 59 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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90. (New) The method of claim 59 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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91. (New) The method of claim 59 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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92. (New) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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93. (New) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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94. (New) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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95. (New) The method of claim 60 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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96. (New) The method of claim 61 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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97. (New) The method of claim 61 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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98. (New) The method of claim 61 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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99. (New) The method of claim 61 wherein said organic phase comprises an organic

diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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~~100.~~ (New) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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~~101.~~ (New) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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~~102.~~ (New) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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~~103.~~ (New) The method of claim 62 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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~~104.~~ (New) The method of claim 63 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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~~105.~~ (New) The method of claim 63 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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~~106.~~ (New) The method of claim 63 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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~~107.~~ (New) The method of claim 63 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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~~108.~~ (New) The method of claim 64 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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~~109.~~ (New) The method of claim 64 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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~~110.~~ (New) The method of claim 64 wherein said organic phase comprises an organic

diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

¹¹²
111. (New) The method of claim 64 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

¹¹³
112. (New) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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113. (New) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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114. (New) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

¹¹⁶
115. (New) The method of claim 65 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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116. (New) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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117. (New) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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118. (New) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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119. (New) The method of claim 66 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

¹²¹
120. (New) The method of claim 67 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.6:1 or less.

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121. (New) The method of claim 67 wherein said organic phase comprises an organic

diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.45:1 or less.

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122. (New) The method of claim 67 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.3:1 or less.

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123. (New) The method of claim 67 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of 0.15:1 or less.

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124. (New) The process of claim 2 wherein the volume ratio of water to crude phenolic bottoms stream is at least 1:1.

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125. (New) The process of claim 3 wherein the volume ratio of water to crude phenolic bottoms stream is at least 1:1.

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125. (New) The process of claim 5 wherein the volume ratio of water to crude phenolic bottoms stream is at least 1:1.

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126. (New) The process of claim 6 wherein the volume ratio of water to crude phenolic bottoms stream is at least 1:1.

REMARKS

Rejection of Claims 11, 15, and 16 under 35 U.S.C. § 112

The examiner rejected claims 11, 15, and 16 as indefinite on the grounds that "Step cii) of claim 11 is not clearly identified." Applicant submits that claim 11 depends from claim 6, which depends from claim 5, which depends from claim 1. The examiner did not reject claim 5 as indefinite. The step further defined by claim 5 clearly is step (c) in claim 1. Therefore, subparagraphs (i) and (ii) of claim 5 clearly are subparagraphs of (c) from claim 1. Applicant has